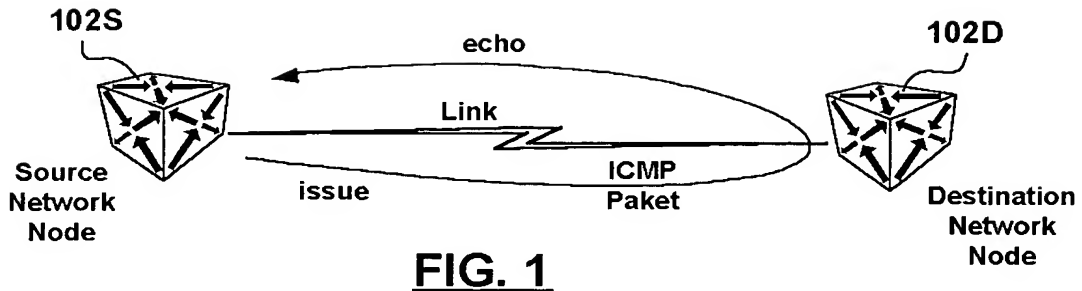


FIG. 1
PRIOR ART

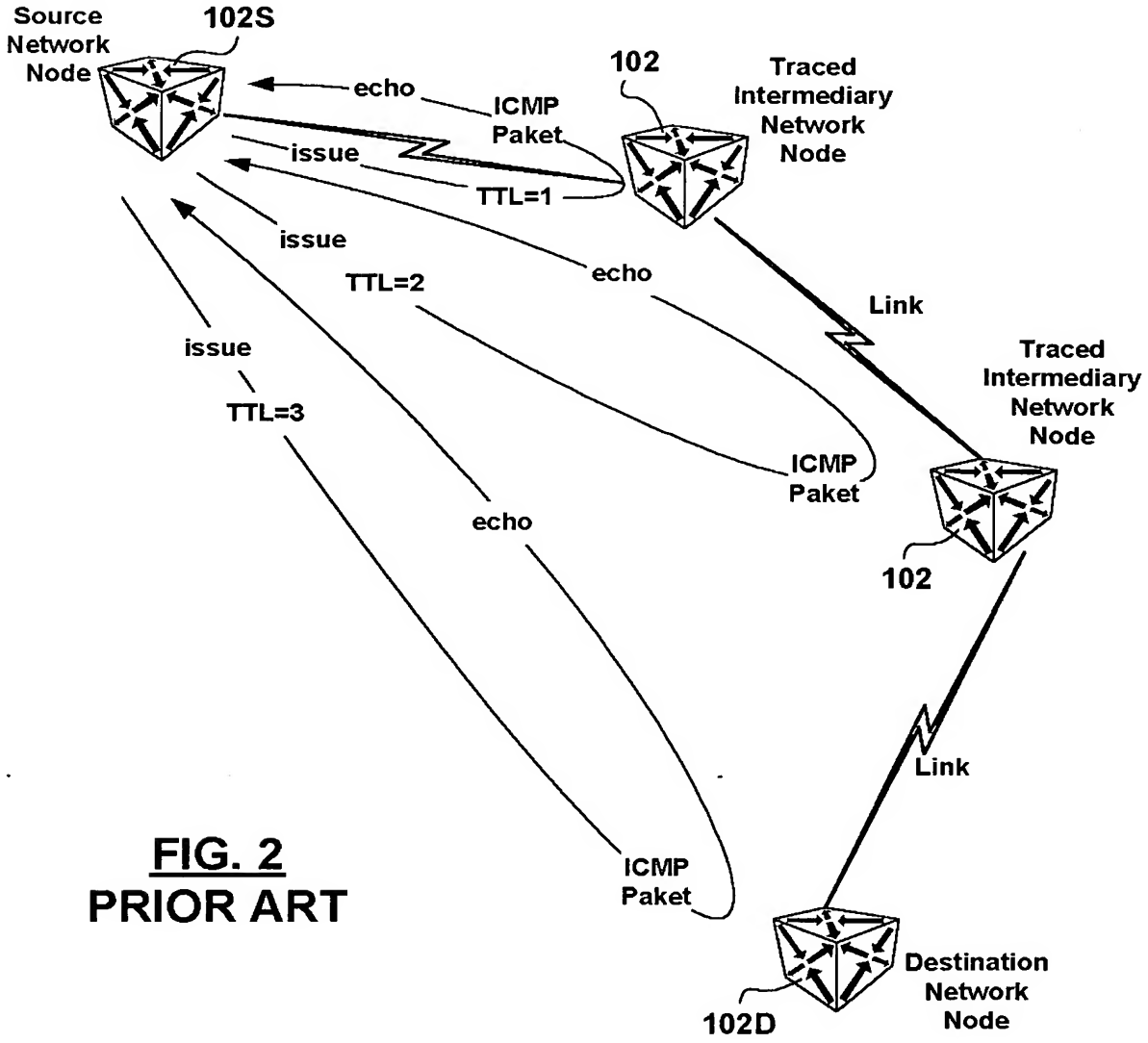


FIG. 2
PRIOR ART

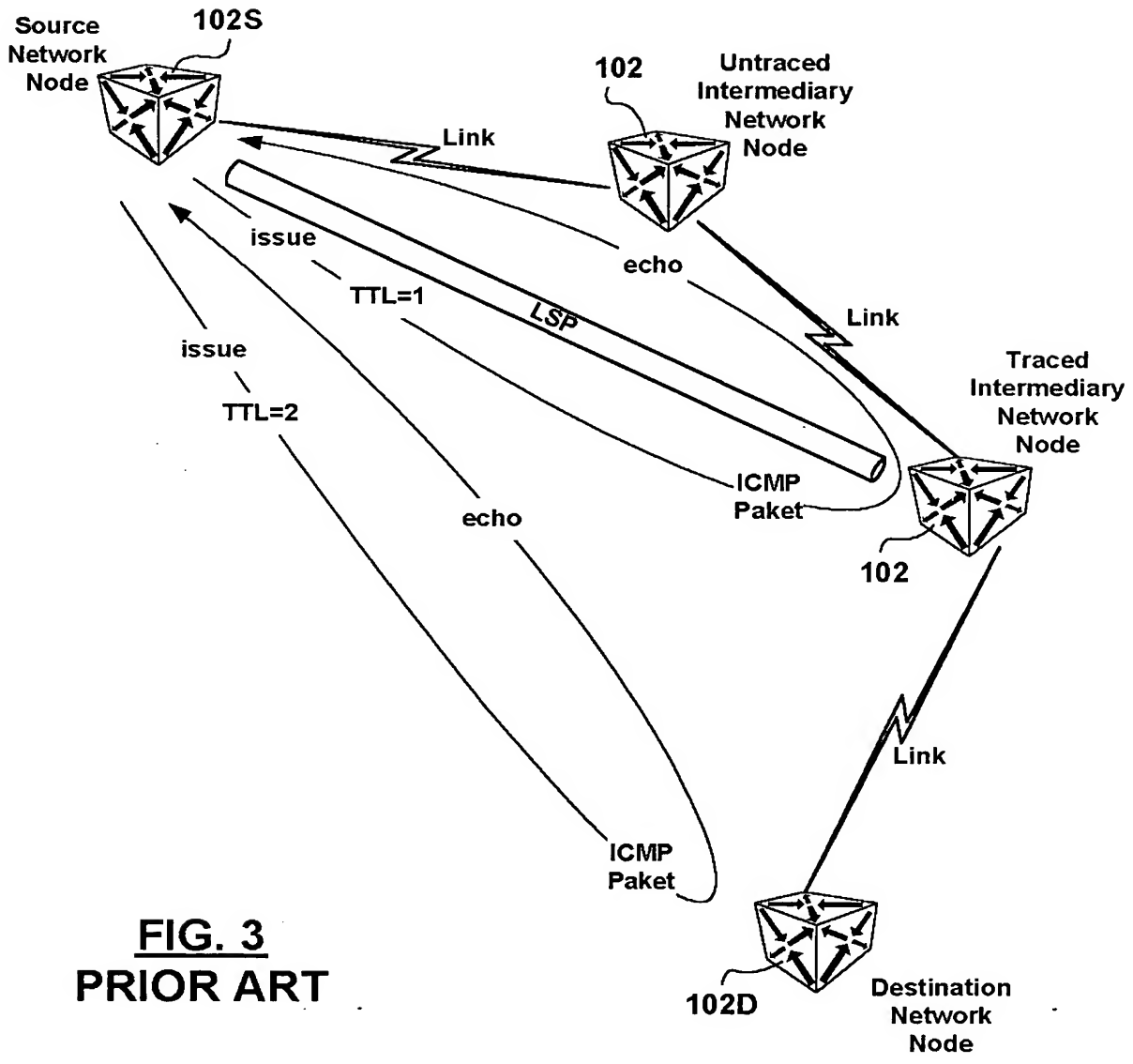


FIG. 3
PRIOR ART

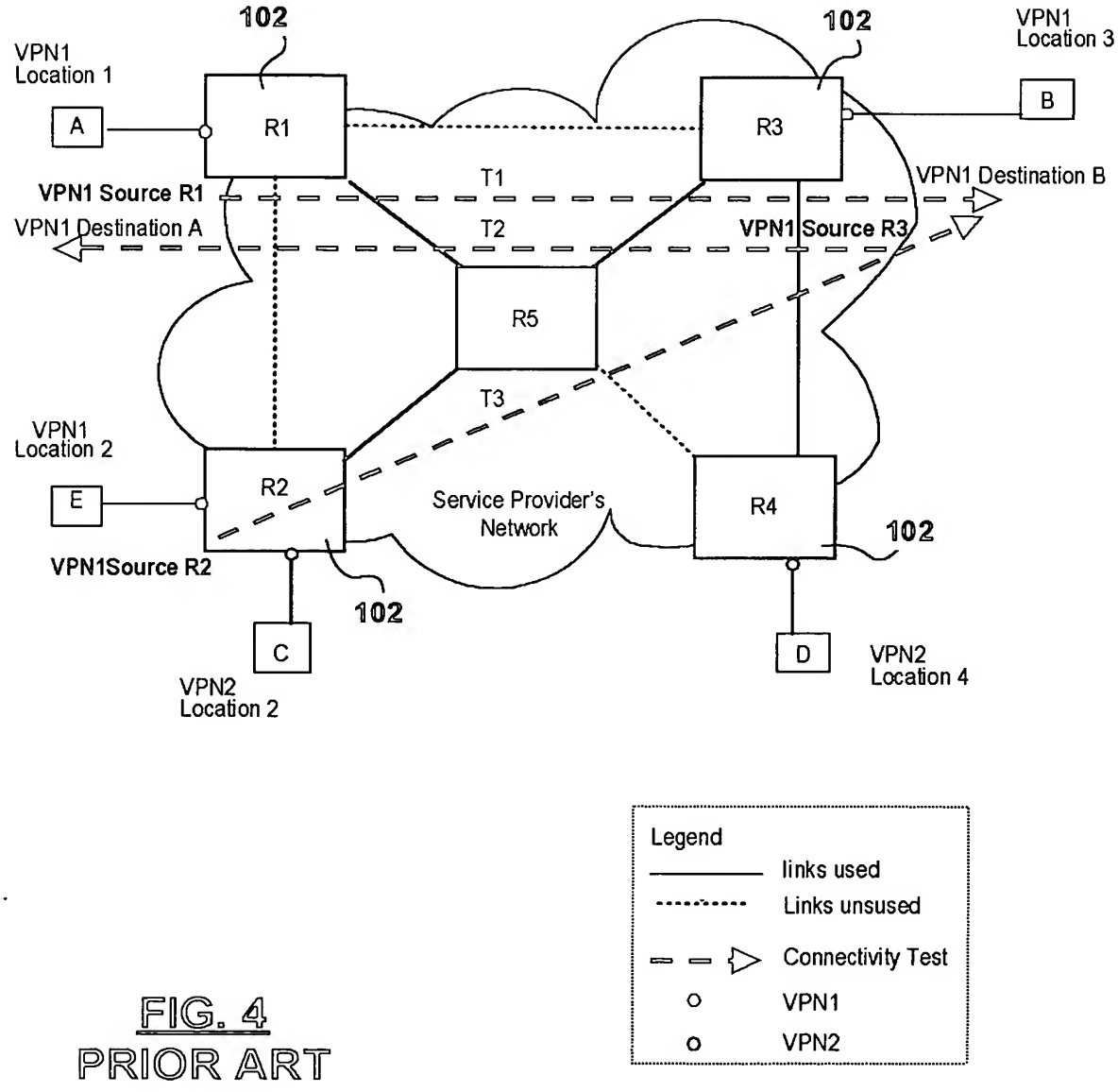


FIG. 4
PRIOR ART

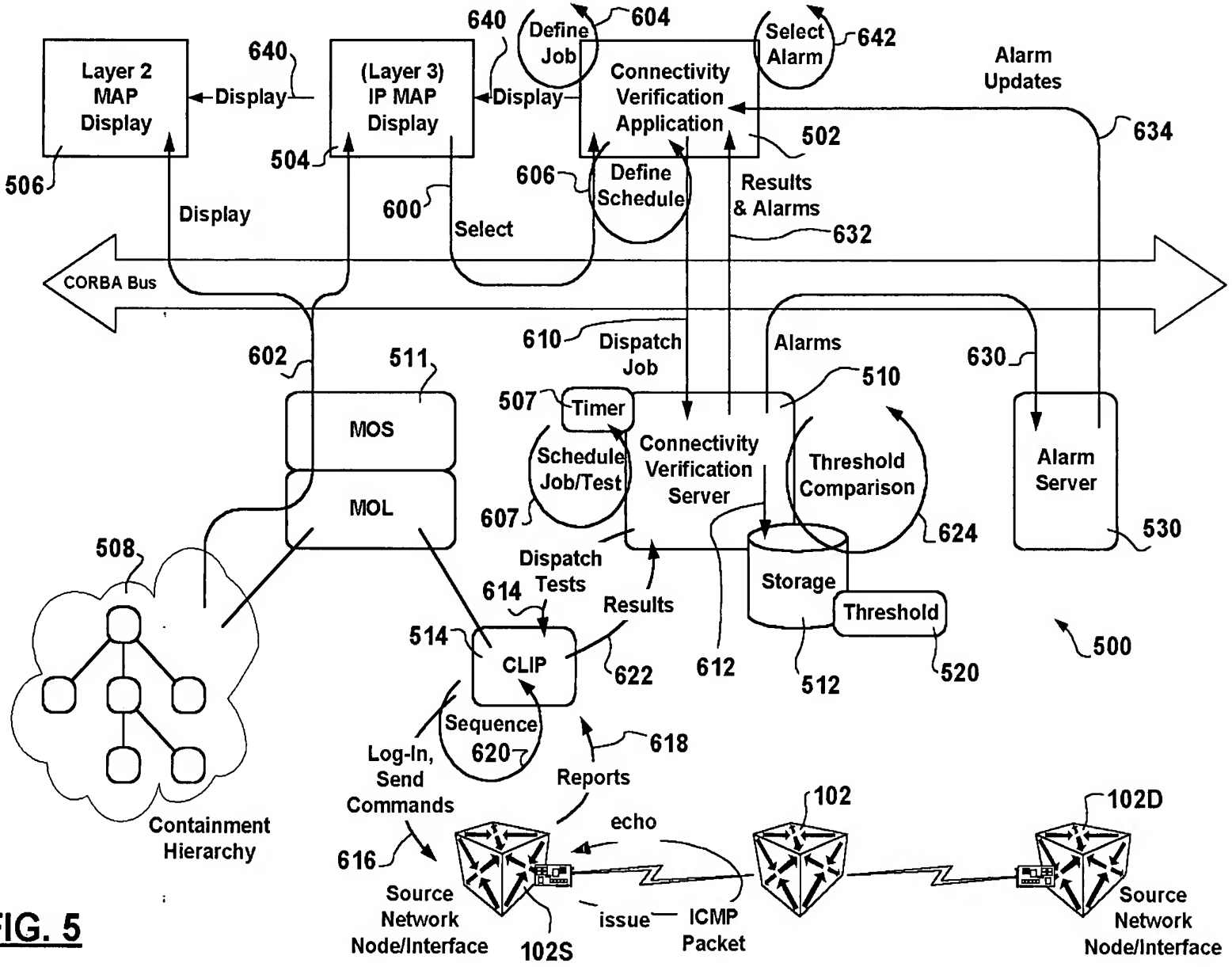
Layer 2 MAP Display
640
Display
(Layer 3) IP MAP Display
640
Display
Define Job
604
Select Alarm
642
Connectivity Verification Application
502
Alarm Updates
634
506
504
600
606
Define Schedule
Display
Select
Results & Alarms
632
CORBA Bus
610
Dispatch Job
Alarms
630
602
511
MOS
MOL
507
Timer
510
Schedule Job/Test
Connectivity Verification Server
Threshold Comparison
Alarm Server
607
624
530
508
Dispatch Tests
Results
614
Storage
Threshold
514
CLIP
622
612
512
520
500
Sequence 620
618
Log-In, Send Commands
Reports
102
102D
echo
616
Source Network Node/Interface
issue
ICMP Packet
102S
Source Network Node/Interface
Containment Hierarchy

FIG. 5

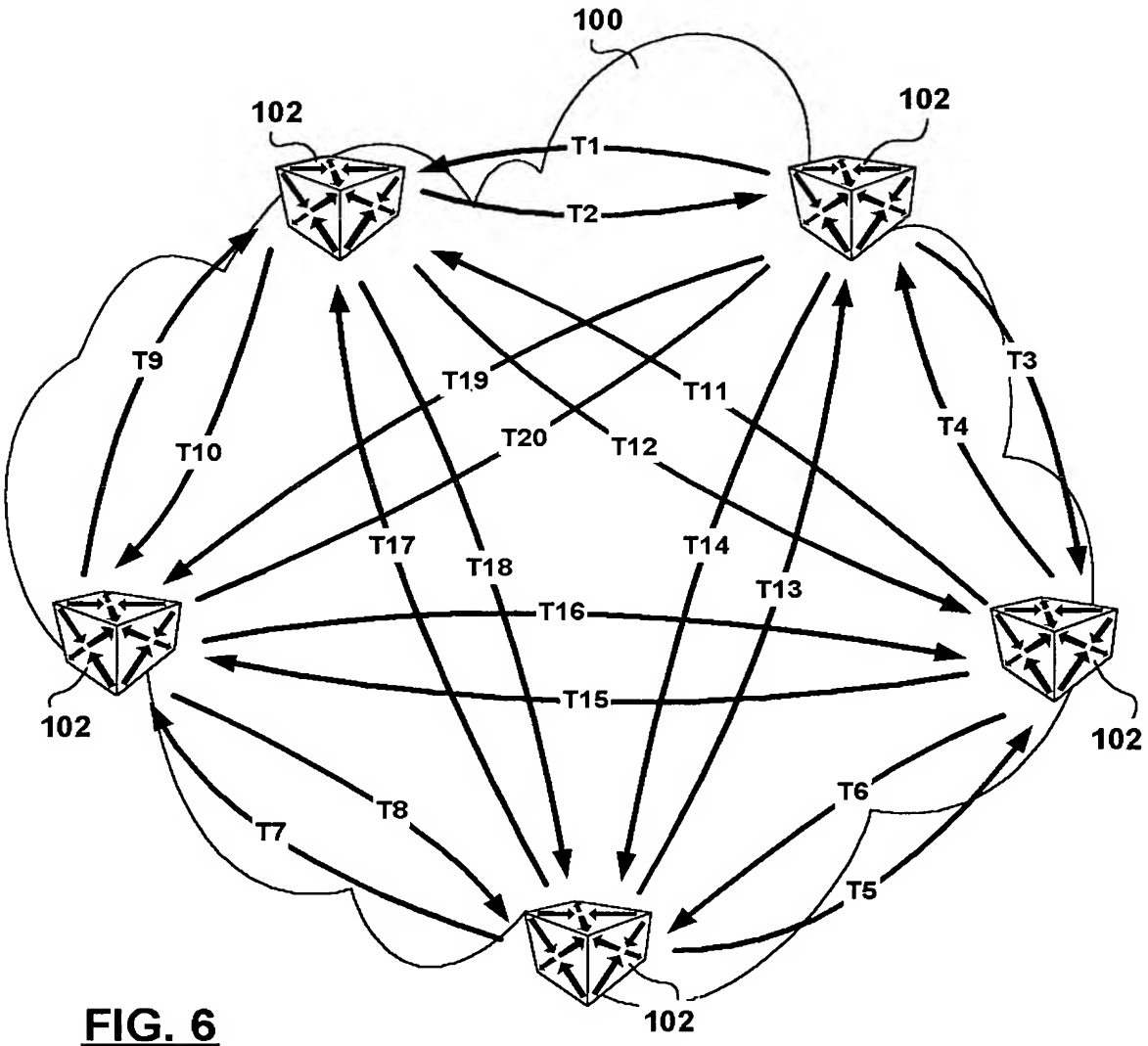
100
102
102
T1
T2
T9
T19
T11
T3
T10
T20
T12
T4
T17
T18
T14
T13
T16
T15
102
102
T8
T7
T6
T5
102

FIG. 6

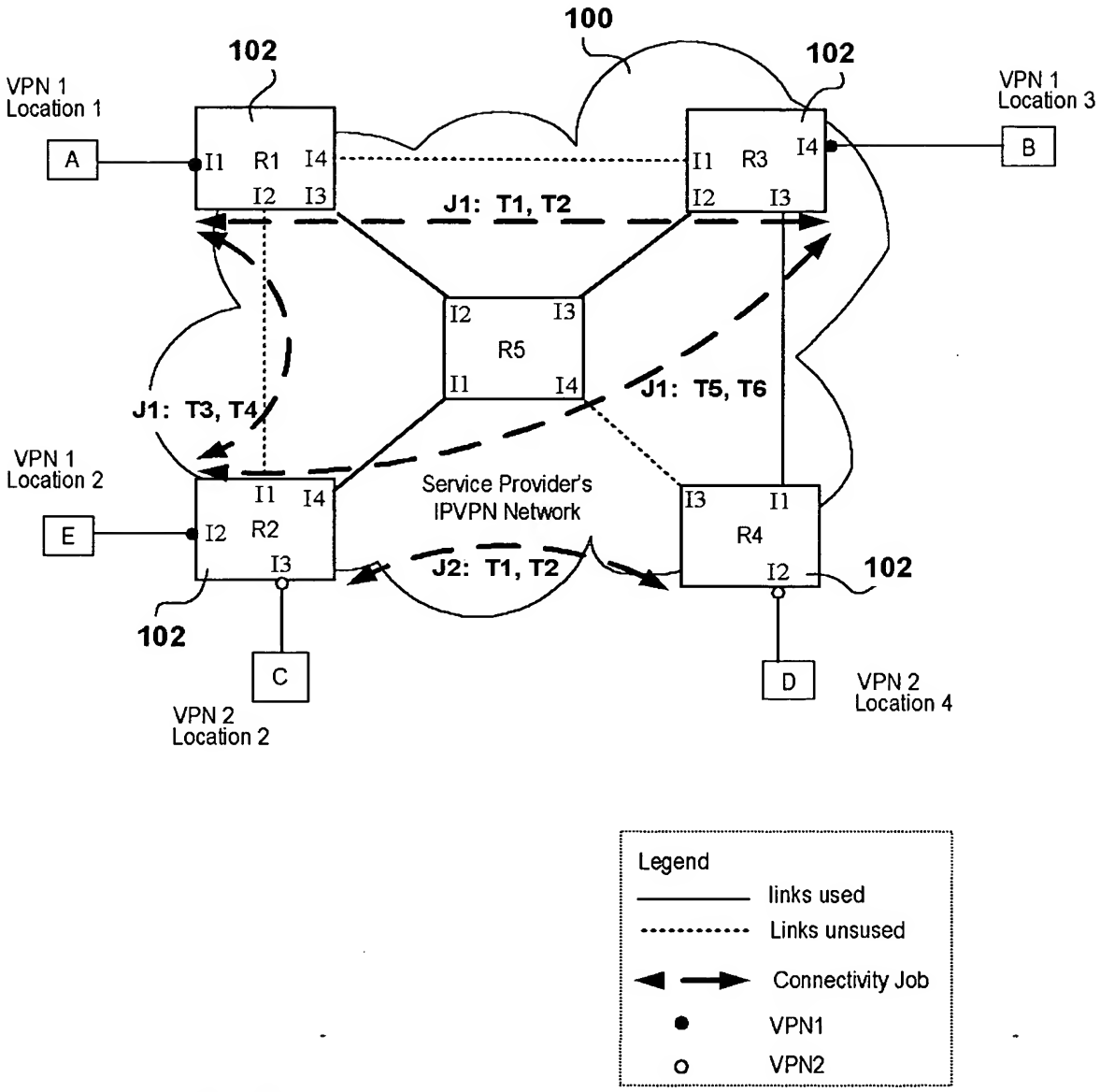
100
102
102
VPN 1
Location 1
VPN 1
Location 3
A
B
I1
R1
I4
I2
I3
I1
R3
I4
I2
I3
J1: T1, T2
I2
I3
R5
I1
I4
J1: T3, T4
J1: T5, T6
VPN 1
Location 2
Service Provider's
IPVPN Network
I1
I4
I2
R2
I3
I3
I1
R4
I2
J2: T1, T2
102
102
C
D
VPN 2
Location 2
VPN 2
Location 4
Legend
links used
Links unsused
Connectivity Job
VPN1
VPN2

FIG. 7

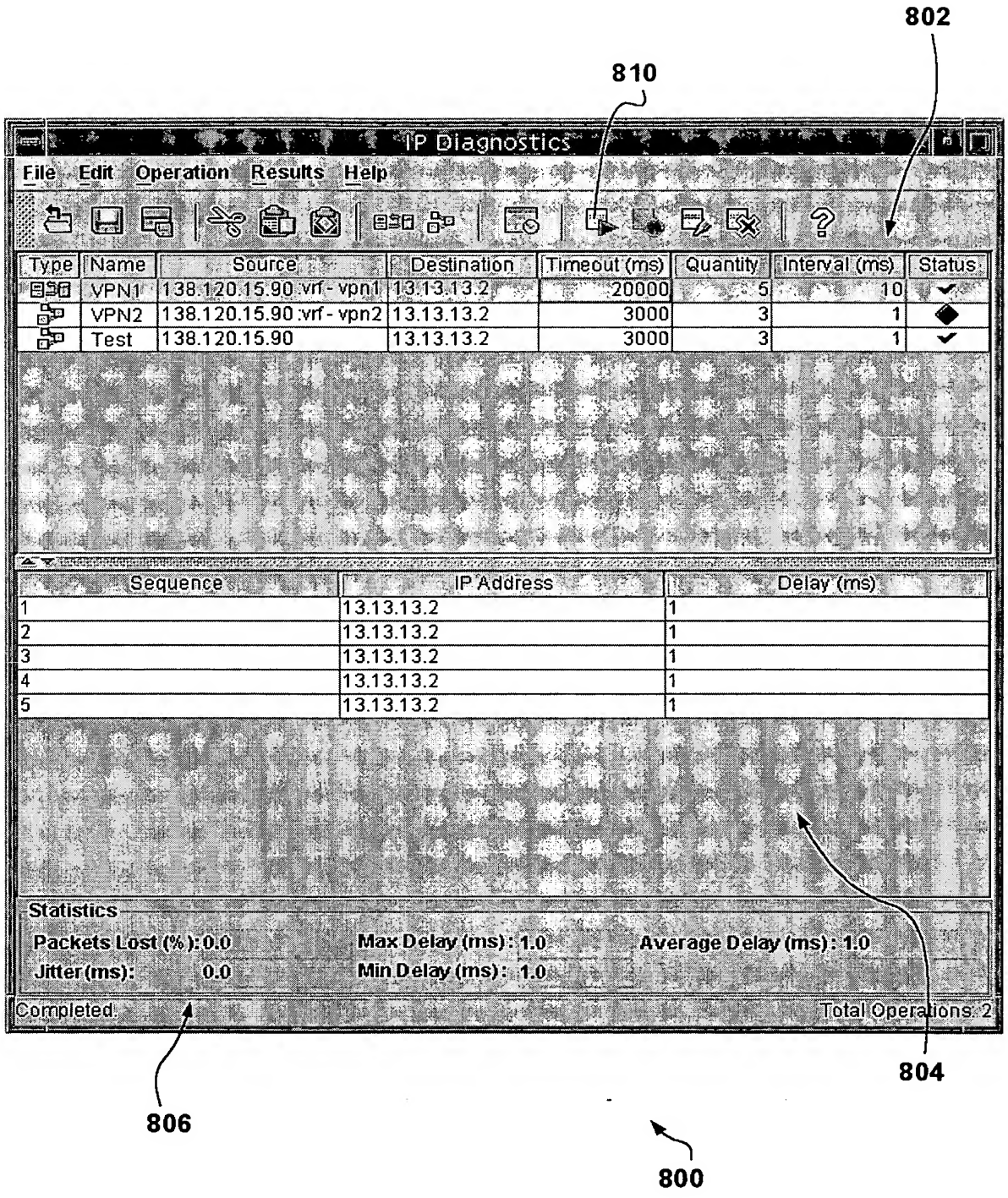
802
810
IP Diagnostics
File Edit Operation Results Help
Type Name Source Destination Timeout (ms) Quantity Interval (ms) Status
VPN1 138.120.15.90 :vrf - vpn1 13.13.13.2 20000 5 10
VPN2 138.120.15.90 :vrf - vpn2 13.13.13.2 3000 3 1
Test 138.120.15.90 13.13.13.2 3000 3 1
Sequence IP Address Delay (ms)
1 13.13.13.2 1
2 13.13.13.2 1
3 13.13.13.2 1
4 13.13.13.2 1
5 13.13.13.2 1
Statistics
Packets Lost (%) : 0.0
Max Delay (ms) : 1.0
Average Delay (ms) : 1.0
Jitter (ms): 0.0
Min Delay (ms) : 1.0
Completed
Total Operations: 2
804
806
800

FIG. 8

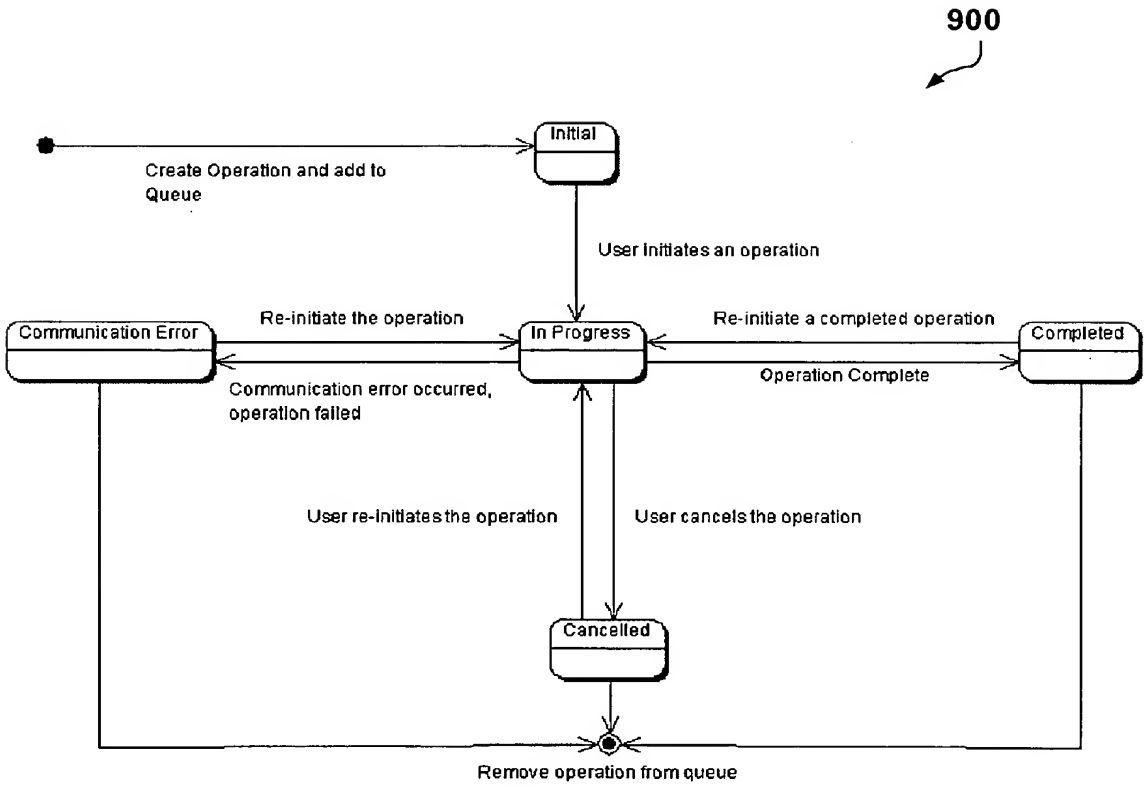
900
Initial
Create Operation and add to Queue
User initiates an operation
Communication Error
Re-initiate the operation
In Progress
Re-initiate a completed operation
Completed
Communication error occurred, operation failed
Operation Complete
User re-initiates the operation
User cancels the operation
Cancelled
Remove operation from queue

FIG. 9

1000

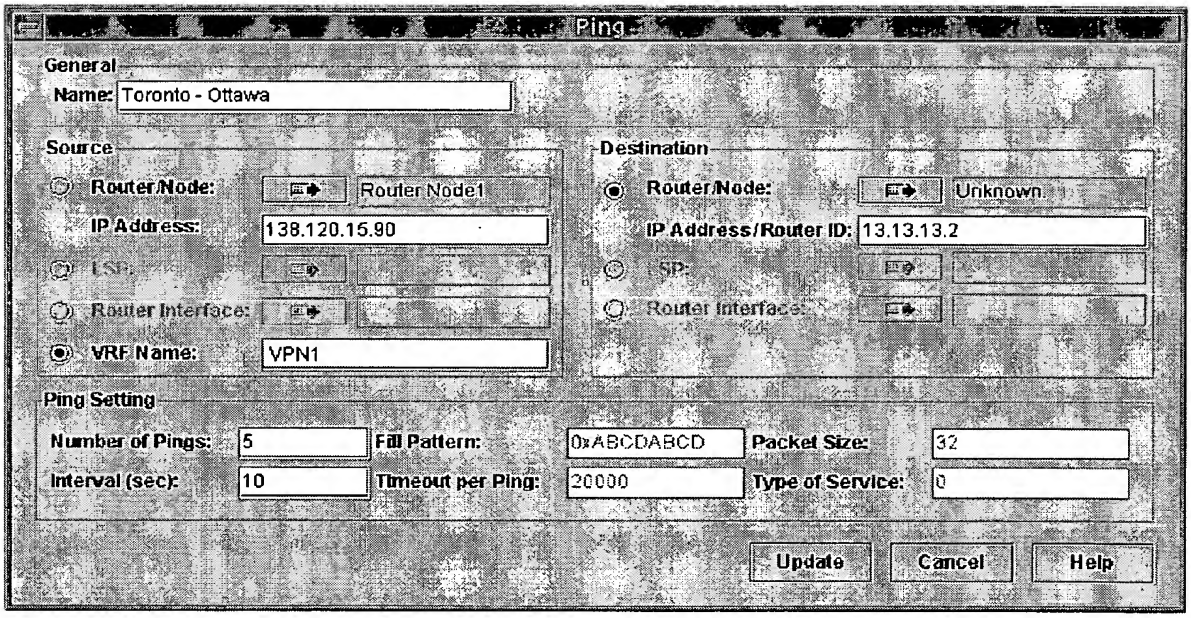
Ping
General
Name: Toronto - Ottawa
Source
Router/Node: Router Node1
IP Address: 138.120.15.90
LSP:
Router Interface:
VRF Name: VPN1
Destination
Router/Node: Unknown
IP Address/Router ID: 13.13.13.2
SP:
Router Interface:
Ping Setting
Number of Pings: 5
Fill Pattern: 0xABCDABCD
Packet Size: 32
Interval (sec): 10
Timeout per Ping: 20000
Type of Service: 0
Update
Cancel
Help

FIG. 10

1100

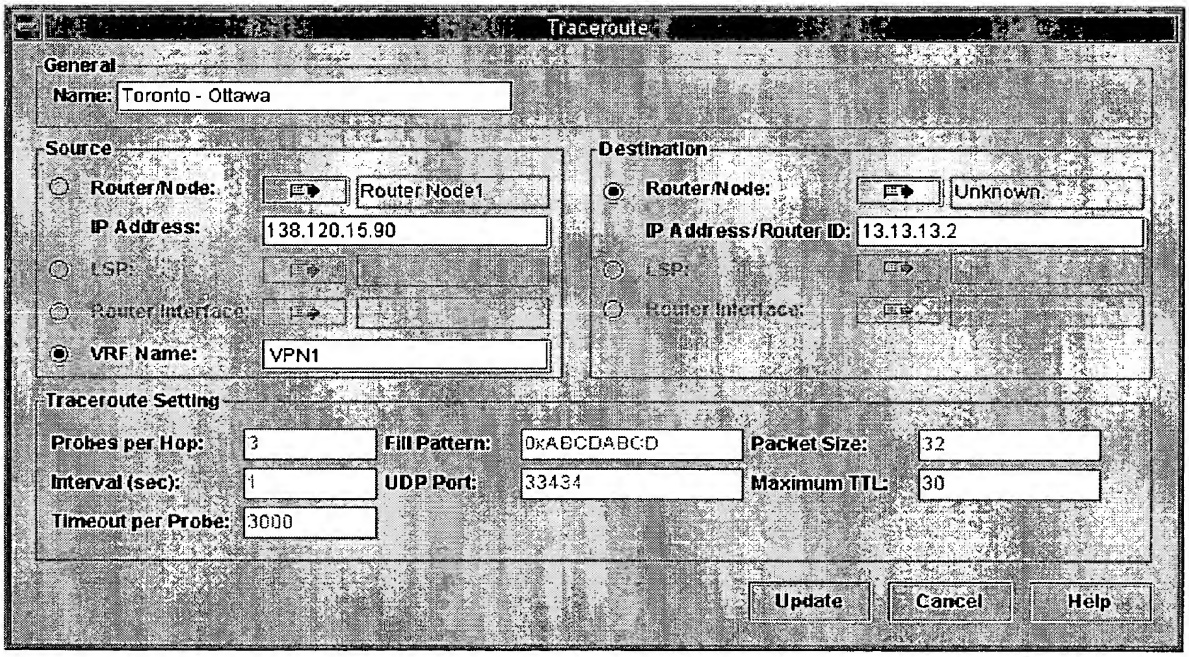
Traceroute
General
Name: Toronto - Ottawa
Source
Router/Node: Router Node1
IP Address: 138.120.15.90
LSP:
Router Interface:
VRF Name: VPN1
Destination
Router/Node: Unknown
IP Address/Router ID: 13.13.13.2
LSP:
Router Interface:
Traceroute Setting
Probes per Hop: 3
Interval (sec): 1
Timeout per Probe: 3000
Fill Pattern: 0xABCDABCD
UDP Port: 33434
Packet Size: 32
Maximum TTL: 30
Update
Cancel
Help

FIG. 11

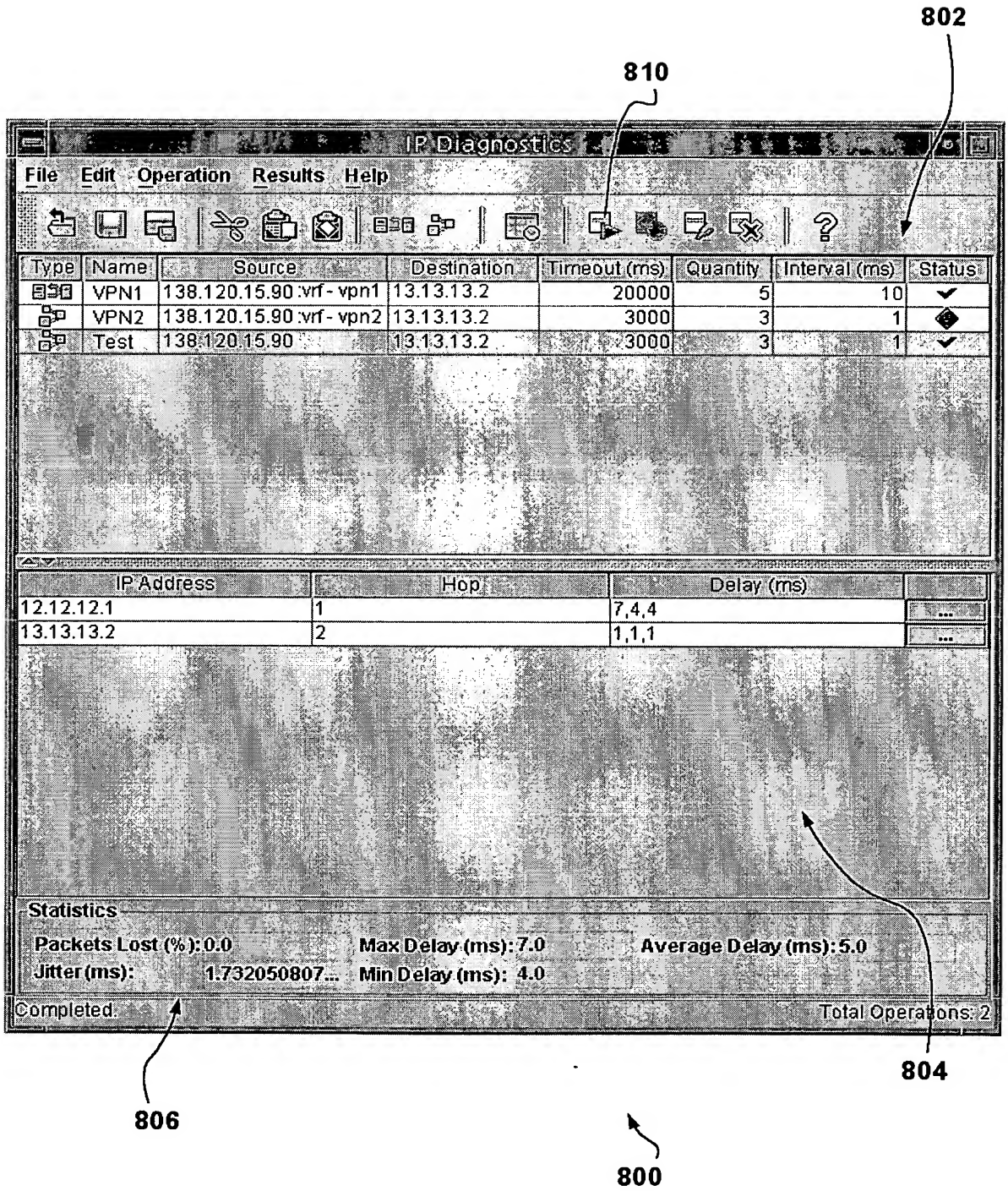
802
810
IP Diagnostics
File Edit Operation Results Help
Type Name Source Destination Timeout (ms) Quantity Interval (ms) Status
VPN1 138.120.15.90 :vrf - vpn1 13.13.13.2 20000 5 10
VPN2 138.120.15.90 :vrf - vpn2 13.13.13.2 3000 3 1
Test 138.120.15.90 13.13.13.2 3000 3 1
IP Address Hop Delay (ms)
12.12.12.1 1 7,4,4
13.13.13.2 2 1,1,1
Statistics
Packets Lost (%): 0.0
Max Delay (ms): 7.0
Average Delay (ms): 5.0
Jitter (ms): 1.732050807...
Min Delay (ms): 4.0
Completed.
Total Operations: 2
804
806
800

FIG. 12

1300

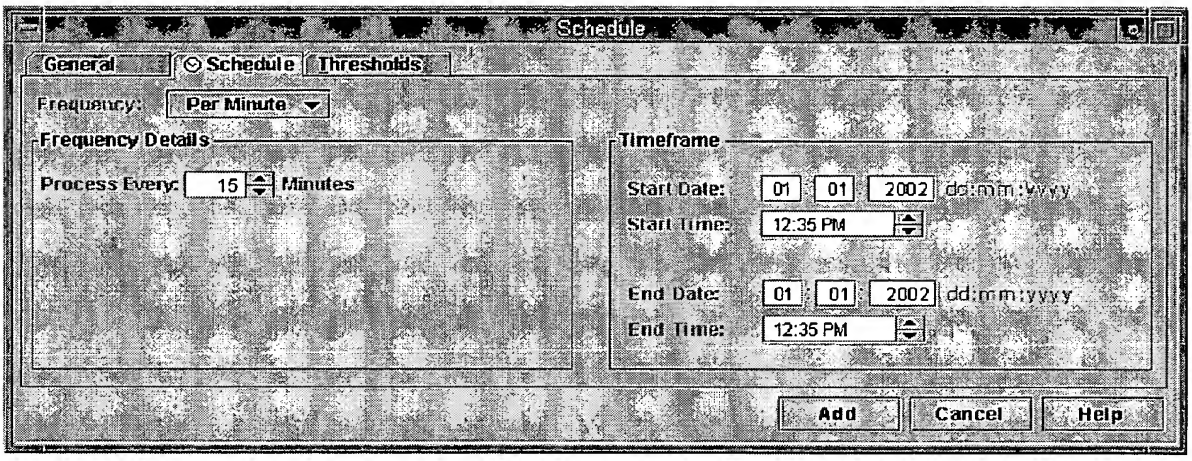
Schedule
General
Schedule
Thresholds
Frequency:
Per Minute
Frequency Details
Process Every:
15
Minutes
Timeframe
Start Date:
01
01
2002
dd:mm:yyyy
Start Time:
12:35 PM
End Date:
01
01
2002
dd:mm:yyyy
End Time:
12:35 PM
Add
Cancel
Help

FIG. 13

1400

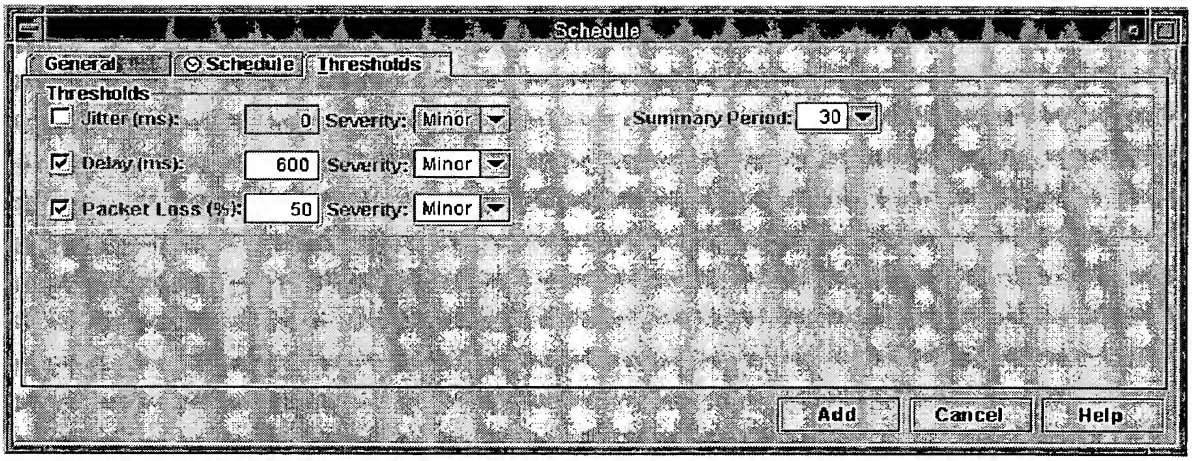
Schedule
General
Schedule
Thresholds
Thresholds
Jitter (ms):
0
Severity:
Minor
Summary Period:
30
Delay (ms):
600
Severity:
Minor
Packet Loss (%):
50
Severity:
Minor
Add
Cancel
Help

FIG. 14